PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Richard A. Lodge et al.	
Serial No: 09/489,929	Group Art Unit: 2684
Filed: January 24, 2000	Examiner: TRAN, Pablo N.

For: Packet Data Traffic Control for Cellular Wireless Networks

Assistant Commissioner for Patents
Alexandria, VA 22313-1450

MAIL STOP APPEAL BRIEF -PATENTS

Sir:

APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192

Pursuant to 37 C.F.R. § 1.191, the Applicant has submitted a Notice of Appeal from the Examiner to the Board of Patent Appeals and Interferences. Specifically, the Applicant takes appeal from the Examiner's rejection of claims 1-9, 13-18, 21-29, 33-38, 41-47 and 49-52 under 35 U.S.C. § 103(a). The Notice of Appeal has been filed in response to the Examiner's Final Action mailed October 5, 2006. Pursuant to 37 C.F.R. § 1.192, the Applicant now submits the following brief.

Real Party in Interest

The real party of interest is Nortel Networks Limited, by virtue of an assignment executed by the inventors in favor of Nortel Networks Corporation recorded at Reel/Frame 010586/0143, and a Universal Change of Name from Nortel Networks Corporation to Nortel Networks Limited recorded at Reel 011195/Frame 0706.

Related Appeals and Interferences

None.

Status of claims

Pursuant to the Examiner's Final Action mailed October 5, 2006, the status of the claims is as follows:

(a) claims 1-9, 13-18, 21-29, 33-38, 41-47 and 49-52 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over the teaching of United States Patent No. (Kikuchi et al) in view of United States Patent No. 5,546,464 (Raith et al); and

(b) claims 10-12, 19-20, 30-32, 39-40, 48 and 53-54 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-9, 13-18, 21-29, 33-38, 41-47 and 49-52 are being appealed

Status of Amendments

No amendments were submitted in the Applicant's response filed July 20, 2006, to the Non-Final Office Action mailed on April 20, 2006. Accordingly, the claims remain as amended in the Applicant's response filed on June 14, 2004. A copy of the current claims is provided in the Claims Appendix below.

Summary of Claimed Subject Matter

The present invention is directed to methods and systems for controlling packet data traffic in a wireless packet-switched network, so as to increase the overall throughput of the packet data traffic through the network. According to the present invention, this is accomplished by examining each wireless link to identify a poorly performing link, and temporarily interrupting bi-directional data transmission over that link. Interruption of bi-direction data transmission in this manner reduces co-channel interference in neighbouring links, and so improves overall performance of the network. Claims 1, 21 and 41 are independent claims defining features of the present invention.

Claim 1 defines a method of controlling data traffic in a wireless data communications network, which comprises steps of, at the base station [4, FIG. 1]: examining performance of each wireless link [10, FIG. 1] to identify a poorly performing wireless link [S2-S4, FIG. 2]; and temporarily interrupting bi-directional data transmission over the poorly performing wireless link

[S5-S20, FIG. 2]. These steps, and the advantages obtained thereby are summarized at page 10, lines 5-31 of the originally filed specification, thus:

> "In accordance with the present invention, data transmitted over poorly performing wireless links is intentionally dropped or suspended in order to improve the overall throughput of the wireless (packet-switched) network.
> ...
>
> The intentional interruption of data communication on poorly performing links frees band-width for use by other links, and also reduces the interference in the system. Both of these effects result in increased overall data throughput of the network by increasing the performance of the remaining links, and these effects are cumulative." (Underlining added)

"Fig. 2 illustrates steps in an exemplary control algorithm for identifying and dropping and/or suspending data transmission over poorly performing data communications links in accordance with the present invention." [page 11 lines 22-26]. As may be seen in FIG. 2, and described in the accompanying description in the specification, the method is implemented in the base station, and operates to monitor and control each of the wireless links between the base station and the wireless stations within the coverage area of the base station.

Claim 21 defines a wireless data communications network [2, FIG. 1] wireless data communications network which includes a base station capable of bi-directional data communication with each one of a plurality of wireless terminals over respective bi-directional wireless data communications links, the base station comprising: computing means for examining performance of each wireless link of the network to identify a poorly performing wireless link; and control means for temporarily interrupting bi-directional data transmission over the identified poorly performing wireless link.

Claim 41 defines a base station [4a-d, FIG. 1] of a wireless data communications network, the base station being adapted for bi-directional data communications with each one of a plurality of wireless terminals over respective bi-directional wireless communications links, the base station comprising: computing means for examining performance of each wireless link of

the network to identify a poorly performing wireless link; and control means for temporarily interrupting bi-directional data transmission over the identified poorly performing wireless link.

The dependent claims define further features of the present invention. More particularly,

Claim 2 requires that "the step of examining performance of the wireless links comprises steps of monitoring one or more performance parameters related to each wireless link, and comparing each monitored performance parameter to a respective predetermined threshold value." (Pg 11, line 30 –Pg 12, line 12, and FIG. 2 steps S2 and S3) Apparatus claims 22 and 42 correspond with claim 2.

Claim 3 defines embodiments of claim 2 in which "the one or more performance parameters ... are based on any one or more of a quality-of-service (QOS), and interference on the wireless link." (Pg 12, lines 5-9). Apparatus claims 23 and 43 correspond with claim 3.

Claim 4 defines embodiments of claim 3 in which "at least one of the performance parameters ... is based on interference on the wireless link, and comprises any one or more of: a signal-to-noise (S/N) ratio; a user data throughput rate; a carrier-to-interference (C/I) ratio; a bit-error-rate (BER); and a number of suspended frames." (Pg 12, lines 5-9, and Pg 15, lines 10-23). Apparatus claims 24 and 44 correspond with claim 4.

Claim 5 defines embodiments of claim 4 in which " at least one of the performance parameters ... comprises an average, taken over a number n of successive bursts, of any one or more of the S/N ratio; the C/I ratio; the user data throughput rate; and the BER." (Pg. 5, line 27-Pg. 6, line 1, Pg 13, lines 21-24, Pg 15, lines 4-9). Apparatus claims 25 and 45 correspond with claim 5.

Claim 6 defines that "the step of interrupting data transmission over the poorly performing wireless link comprises a step of suspending transmission of a data frame ..." (Pg 12, lines 13-25 and steps S4 and S5 of FIG. 2) . Apparatus claims 26 and 46 correspond with claim 6.

Claim 7 defines embodiments of claim 6 in which "transmission of the data frame [is resumed] after a delay period." (Pg 16, lines 8-12 and steps 7, 10-11 of FIG. 2) . Apparatus claim 27 corresponds with claim 7.

Claim 8 defines embodiments of claim 7 in which " the delay period is a period of random length." (Pg 16, lines 15-16) . Apparatus claim 28 corresponds with claim 8.

Claim 9 defines embodiments of claim 6 in which "a count of suspended frames" is maintained. (Pg 17, lines 4-5 and step S14 of FIG. 2) . Apparatus claims 29 and 47 correspond with claim 9.

Claim 10 defines embodiments of claim 9 in which "a communications session over the wireless link [is suspended] if the count of suspended frames exceeds a predetermined threshold." (Pg 17, line 22-25 and step S18 of FIG. 2) . Apparatus claims 30 and 48 correspond with claim 10.

Claim 11 defines embodiments of claim 10 in which "the session [is restarted] after a delay period. (Pg 17, line 28-31 and steps S19 and S20 of FIG. 2) . Apparatus claim 31 corresponds with claim 11.

Claim 12 defines embodiments of claim 11 in which "the delay period is of random length. (Pg 18, lines 1-3) . Apparatus claim 32 correspond2 with claim 12.

Claim 13 defines embodiments of claim 3 in which "at least one of the performance parameters ... is a QOS performance parameter comprising any one or more of a data transmission delay, and a number of dropped frames. (Pg 12, line 13-Pg. 16, line 19) . Apparatus claims 33 and 49 correspond with claim 13.

Claim 14 defines embodiments in which "the step of interrupting data transmission over the poorly performing wireless link comprises a step of dropping a data frame transmitted over the poorly performing wireless link. (Pg 12, line 13-Pg. 16, line 19) . Apparatus claims 34 and 50 correspond with claim 14.

Claim 15 defines embodiments of claim 14 in which the dropped frame is retransmitted after a delay period. (Pg. 16, lines 7-15) . Apparatus claim 35 correspond3 with claim 15.

Claim 16 depends from claim 15 and defines that the delay period can be a period of random length. (Pg. 16, lines 15-16). Apparatus claim 36 corresponds with claim 16.

Claim 17 defines embodiments of claim 13, in which "a count of dropped frames" is maintained. (Pg 15, lines 24-25). Apparatus claims 37 and 51 correspond with claim 17.

Claim 18 defines embodiments of claim 17, in which the session is dropped if the number of dropped frames exceeds a predetermined threshold. (Pg 15, line 30-Pg 16, line 2). Apparatus claims 38 and 52 correspond with claim 18.

Claim 19 defines embodiments of claim 13, in which "the step of monitoring a respective performance parameter respecting each wireless link comprises a step of predicting whether a QOS performance parameter is certain to violate a corresponding QOS requirement of a communications session on the link". Pg. 12, lines 13-15; Pg. 13, lines 9-17; and Pg 14, lines 17-25). Apparatus claims 39 and 53 correspond with claim 19.

Claim 20 depends from claim 19, and defines embodiments in which "the step of interrupting data transmission over the poorly performing wireless link comprises a step of preemptively dropping a data frame being transmitted over the poorly performing wireless link." (Pg 13, lines 12-17). Apparatus claims 40 and 54 correspond with claim 20.

An important aspect of the present invention is that the suspension of data transmission through poorly performing link(s) is accomplished without severing (that is, tearing-down or severing) the link itself. The distinction between suspension of packet data transmission (or, equivalently, dropping of a frame) and severing a link (or, equivalently, dropping of a call) is clearly described at page 11, lines -21 of the originally filed specification. Thus:

> "The concept of dropping a call in a circuit-switched network is very different from that of dropping or suspending a packet or frame transmission in a packet-switched network. In the circuit-switched network, dropping a call implies that the link connection between the originating and terminating users is severed, whereas this is not necessarily true in the case of a dropped frame or packet in a packet-switched network. The dropping of a call in cellular wireless circuit-switched networks usually occurs in the radio link between the serving base station and the mobile user due to a harsh radio

frequency (RF) environment. When designing such a system, one of the principal objectives is to minimize the number of dropped calls, which significantly affect the grade of service (GOS) offered to the users by the network provider. In wireless packet-switched network systems, however, the dropping or suspension of a radio link transmission does not automatically result in a breakdown of the connection between a server and a user. The parties to the communications session can still be connected via known logical set up links." (Underlining added)

Grounds of Rejection to be Reviewed on Appeal

In the Final Action mailed October 5, 2006, the Examiner's claim rejections are based on the combination of United States Patent No. (Kikuchi et al) in view of United States Patent No. 5,546,464 (Raith et al).

With reference to independent claims 1, 21 and 41, the Examiner asserted that:

"Kikuchi et al disclosed a wireless data communication network comprising a base station (FIG.8/no. 23 & 31, col. 8/ln. 35-45), capable of bi-directional data communication with a wireless terminal (FIG. 8/no. 22 & 38), wherein the base station having means for temporarily interrupting the bi-directional data transmission over the poorly performing wireless link (FIG. 11, col 10/ln. 6-25).

Kikuchi et al suggest that the method of monitoring the wireless link performance is at the wireless terminal and not at the base station. However, Raith et al teach such method of monitoring the wireless link performance and temporarily interruption of the wireless communication link, therefore it would be obvious to one or ordinary skill in the art to provide such teaching of Raith et al to the communication system of Kikuchi et al in order to allow efficient handling of data transmission and effectively utilize system resources for a zone, cell, or a predetermined area within the network."

At section 4 of the Detailed Action, the Examiner asserted that "Applicant's arguments filed 07/20/06 have been considered but they are not found persuasive" However, in spite of this, Applicant notes that the Examiner has in fact adopted a new ground for rejection. In particular, in the Office Action of April 20, 2006, the Examiner's claim rejections were identical to those of the present Final Action, except that in the April 20, 2006 Office Action the Examiner equated Kikuchi's server unit 15 (FIG. 2) to the base station. Thus, the Examiner has abandoned his previous ground of rejection in favour of new grounds, even as he has continued to rely on the same arguments.

Argument

As an initial matter, Applicant notes that no claim amendments were submitted in response to the Office Action mailed April 20, 2006. Furthermore, Applicant has not submitted any new information in an Information Disclosure Statement subsequent to the April 20, 2006 Office Action. Accordingly, the Examiner's new ground of rejection in the Final Action mailed October 5, 2006 was neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p). As such, the finality of the Final Action mailed October 5, 2006 is improper. [MPEP 706.07(a)]

Notwithstanding the impropriety of the Final Action mailed October 5, 2006, Applicant wishes to proceed with the present Appeal, on the ground that, in spite of adopting a new ground of rejection, the Examiner has not raised any new issues of patentability. Indeed, Applicant is of the view that the Examiner has not raised any new issues of patentability since at least the Examiner's Non-Final Office Action mailed August 11, 2004 (Paper 20): in which claims 1-9, 13-18, 21-29, 33-38, 41-47 and 49-52 were rejected under 35 U.S.C. § 103(a), as being unpatentable over United States Patent No. 5,383,221 (Akita et al.) in view of United States Patent No. 6,765,889 (Ludwig).

By way of summary, in the Non-Final Office Action mailed August 11, 2004 (Paper 20) the Examiner asserted that:

> "Akita et al. disclosed a method of controlling data traffic in a wireless communications network comprising a plurality of wireless terminals and

> base stations wherein the method having the steps of examining performance each wireless link to identify a poorly performing wireless link and temporarily interrupting the bi-directional data transmission over the poorly performing wireless link (col. 6/ln. 4-63)."

This same argument was repeated in the Final Action mailed May 31, 2005, and subsequently withdrawn in the Notice of Panel Decision from Pre-Appeal brief Review Mailed February 10, 2006. However, apparently not to be deterred, the Examiner resurrected the same argument, in the next Office Action, mailed April 20, 2006, but with the Kikuchi et al and Raith et al cited in place of Akita et al, and Ludwig, respectively. The fact that new prior art references are being relied upon may point to a new ground of rejection. However, the fact is that the Akita et and Kikuchi et al references were relied upon to provide the same teaching, and applied in the same manner, against the same claims, shows that no new issues of patentability were being raised in the Office Action mailed April 20, 2006.

As noted above, in the non-Final Office Action mailed April 20, 2006, the Examiner attempted to equate Kikuchi's server unit 15 (FIG. 2) to a base station. The obvious falsity of such an assertion was clearly demonstrated in Applicant's response filed July 20, 2006, as follows:

> "...Kikuchi et al explicitly teach that the wireless network comprises mobile station (PS) 1 and base stations (CS) 6 and 7. The server unit 15 is connected to these elements via "a network such as an office LAN through a high-speed network such as an ISDN or a public network such as a telephone line". The person of ordinary sill in the art will instantly recall that ISDN and a telephone lines are wire-line networks, and do not form part of a wireless network. As such, Kikuchi et al explicitly contradicts the Examiner's characterization of the server unit 15 as a base station of a wireless network. In the system of Kikuchi et al. the base stations 6 and 7 form part of the wireless network, and the server unit 15 resides on a high speed network. It is impossible to confuse the server unit 15 and the base stations 6 and 7."

In the Final Action mailed October 5, 2006 the Examiner has abandoned his previous reliance on the server unit 15, in favour of attempting to equate *the entire network* to the base station. It will be noted, however, that apart from relying on a different component to provide a teaching of a base station, the Examiner's reasons for rejection, and the subject claims remain substantially unchanged since the Non-Final Office Action mailed August 11, 2004 (Paper 20). It is clear therefore, that not only has the Examiner failed to raise any new issues in the present Final Action, the Examiner's continuing pattern of repeated rejections suggest a preconceived conclusion of obviousness on the part of the Examiner, which is itself improper.

With specific reference to the position taken by the Examiner in the Final Action mailed October 5, 2006, the person of ordinary skill in the art will instantly, and without difficulty recognise that equating networks 23 and 31 to a base station is no more legitimate than the Examiner's previous attempt to equate server unit 15 to a base station.

In particular, Kikuchi et al explicitly teaches that:

> "FIG. 8 is a block diagram showing the overall arrangement of the second system of the present invention. A network system for mobile radio communication will be described below. Assume that a slot error or a reduction in electric field strength occurs between a PS and a private CS during a local information service system or the like in which, for example, data is transmitted/received to/from a server unit connected to a network in facilities such as an amusement park without the mediacy of a line.
>
> The second system comprises a network A23 constituted by a radio management server A26, a group of unit cells, a server unit A27, and a client unit (1) 29, and a network B31 constituted by a radio management server B32, a group of unit cells, a server unit B33, and a client unit (2) 34. Each unit cell is constituted by a private CS (1) 24 and a CS (2) 25, or a CS (3) 36 and a CS (4) 37, and a PS (1) 22 or a PS (2) 38 which establishes a channel with a private CS in the unit cell while moving. [Col 8, lines 25-44]

Thus it will be seen that Kikuchi et al. explicitly teaches that network A 23 comprises a plurality of components, including base stations 24 and 25; a radio management server 26, a Server unit 27; a client unit 29; and a router 30. Similarly network B 31 comprises base stations 36 and 37; a radio management server 32, a Server unit 33; a client unit 34; and a router 35.

Kikuchi et al provide no explicit teaching of how the various components of networks A and B (23 , 31) are interconnected, and thus the person of ordinary skill in the art must necessarily conclude that either entirely conventional methods are used, or else the network arrangement of FIG. 2 may be employed. In either case, the result is an arrangement in which a server unit is connected to a plurality of base stations via a network, which network also includes a radio management server, a client unit, and a router. Since Kikuchi et al explicitly teaches the use of multiple base stations within each network 23, 31, it is instantly obvious that Kikuchi et al do not teach or suggest that each network, taken as a whole, is itself a base station. Nor do Kikuchi et al provide any motivation for such a treatment.

Thus the very drawing relied upon by the Examiner directly contradicts the Examiner's characterization. A network comprising multiple servers, routers and base stations is not itself a base station, and cannot rationally be confused with a base station.

Furthermore, Kikuchi et al explicitly teach that the mobile station (PS) 1 monitors the quality of its link with a public base station (CS) 6. If the link quality deteriorates, the mobile station attempts to execute a "hand-off" procedure to establish a new link with another public base station CS 7. As such, it is impossible to rationally assert that Kikuchi et al teach or suggest the steps of "at the base station: examining performance of each wireless link to identify a poorly performing wireless link; and temporarily interrupting bi-directional data transmission over the poorly performing wireless link", as required by the present invention. More particularly:

- The mobile station of Kikuchi et al monitors the performance of exactly one wireless link – its own. The mobile station unit of Kikuchi et al is utterly incapable of monitoring each wireless link of the network, and Kikuchi et al do not teach, suggest, or even remotely contemplate such operation.

- Kikuchi et al responds to degraded link performance by attempting a hand-off procedure to a new base station CS. According to Kikuchi et al, the mobile station and/or the server unit temporarily interrupt data transmission during this procedure to prevent loss of data. However, in this case, interruption of data transmission is performed by the sever unit – remote from the base station(s). Kikuchi et al do not teach, suggest, or even remotely contemplate interruption of bi-direction data transmission at the base station.

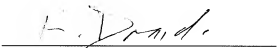
United States Patent No. 5,546,464 (Raith et al) does not supply the missing teachings.

In particular, Raith et al teach a ciphered communication system and methods, in which the cipher is selectively resynchronized following initial channel acquisition or hand-off. However, Raith et al do not teach or suggest deliberately interrupting bi-directional data transmission. More particularly, Raith et al do not teach, suggest, or remotely contemplate either of the steps of "examining performance of each wireless link to identify a poorly performing wireless link", and "temporarily interrupting bi-directional data transmission over the poorly performing wireless link", as required by the present invention.

In light of the forgoing, neither of the Examiner's references teach or suggest the features of independent claims 1, 21 and 41, and thus cannot sustain a claim rejection under 35 U.S.C. § 103(a). The dependent claims define further features of the invention which, in combination with the elements of claims 1-, 21 and 41, are believed to provide still further grounds for patentability.

If any extension of time under 37 C.F.R. § 1,136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,



By: Kent Daniels
Reg. No. 44,206
Attorney for the Applicants

March 19, 2007
Ogilvy Renault
Suite 1600
1981 McGill College Avenue
Montreal, Quebec
Canada, H3A 2Y3
Tel: (613) 780 8673

Claims Appendix

Claims involved in the Appeal

1. [PREVIOUSLY AMENDED] A method of controlling data traffic in a wireless data communications network comprising a plurality of wireless terminals and a base station, each wireless terminal being adapted for bi-directional data communication with the base station through a respective bi-directional wireless data communications link, the method comprising steps of, at the base station:

   a) examining performance of each wireless link to identify a poorly performing wireless link; and

   b) temporarily interrupting bi-directional data transmission over the poorly performing wireless link

2. [PREVIOUSLY AMENDED] A method as claimed in claim 1, wherein the step of examining performance of the wireless links comprises steps of monitoring one or more performance parameters related to each wireless link, and comparing each monitored performance parameter to a respective predetermined threshold value.

3. [ORIGINAL] A method as claimed in claim 2, wherein the one or more performance parameters related to each wireless link are based on any one or more of a quality-of-service (QOS), and interference on the wireless link.

4. [ORIGINAL] A method as claimed in claim 3, wherein at least one of the performance parameters related to each wireless link is based on interference on the wireless link, and comprises any one or more of: a signal-to-noise (S/N) ratio; a user data throughput rate; a

carrier-to-interference (C/I) ratio; a bit-error-rate (BER); and a number of suspended frames.

5. [ORIGINAL] A method as claimed in claim 4, wherein at least one of the performance parameters related to each wireless link comprises an average, taken over a number n of successive bursts, of any one or more of the S/N ratio; the C/I ratio; the user data throughput rate; and the BER.

6. [PREVIOUSLY AMENDED] A method as claimed in claim 1, wherein the step of interrupting data transmission over the poorly performing wireless link comprises a step of suspending transmission of a data frame over the poorly performing wireless link.

7. [ORIGINAL] A method as claimed in claim 6, further comprising a step of resuming transmission of the data frame after a delay period.

8. [ORIGINAL] A method as claimed in claim 7, wherein the delay period is a period of random length.

9. [PREVIOUSLY AMENDED] A method as claimed in claim 6, further comprising maintaining a count of suspended frames.

10. [ORIGINAL] A method as claimed in claim 9, further comprising suspending a communications session over the wireless link if the count of suspended frames exceeds a predetermined threshold.

11. [PREVIOUSLY AMENDED] A method as claimed in claim 10, further comprising restarting the session after a delay period.

12. [PREVIOUSLY AMENDED] A method as claimed in claim 11, wherein the delay period is of random length.

13. [ORIGINAL] A method as claimed in claim 3, wherein at least one of the performance parameters related to each wireless link is a QOS performance parameter comprising any one or more of a data transmission delay, and a number of dropped frames.

14. [PREVIOUSLY AMENDED] A method as claimed in claim 1, wherein the step of interrupting data transmission over the poorly performing wireless link comprises a step of dropping a data frame transmitted over the poorly performing wireless link.

15. [PREVIOUSLY AMENDED] A method as claimed in claim 14, further comprising a step of re-transmitting the dropped frame after a delay period.

16. [ORIGINAL] A method as claimed in claim 15, wherein the delay period is a period of random length.

17. [ORIGINAL] A method as claimed in claim 13, further comprising maintaining a count of dropped frames.

18. [PREVIOUSLY AMENDED] A method as claimed in claim 17, further comprising a step of dropping the session if the number of dropped frames exceeds a predetermined threshold.

19. [ORIGINAL] A method as claimed in claim 13, wherein the step of monitoring a respective performance parameter respecting each wireless link comprises a step of predicting whether a QOS performance parameter is certain to violate a corresponding QOS requirement of a communications session on the link.

20. [PREVIOUSLY AMENDED] A method as claimed in claim 19, wherein the step of interrupting data transmission over the

poorly performing wireless link comprises a step of preemptively dropping a data frame being transmitted over the poorly performing wireless link.

21. [PREVIOUSLY AMENDED] A wireless data communications network comprising a base station capable of bi-directional data communication with each one of a plurality of wireless terminals over respective bi-directional wireless data communications links, the base station comprising:

a) computing means for examining performance of each wireless link of the network to identify a poorly performing wireless link; and

b) control means for temporarily interrupting bi-directional data transmission over the identified poorly performing wireless link

22. [ORIGINAL] A network as claimed in claim 21, wherein the computing means comprises means for monitoring one or more performance parameters related to each wireless link, and comparing each monitored performance parameter to a respective predetermined tolerance.

23. [ORIGINAL] A network as claimed in claim 22, wherein the one or more performance parameters related to each wireless link are based on any one or more of a quality-of-service (QOS), and interference on the wireless link.

24. [ORIGINAL] A network as claimed in claim 23, wherein at least one of the performance parameters related to each wireless link is based on interference on the link, and comprises any one or more of: a signal-to-noise (S/N) ratio; a carrier-to-interference (C/I) ratio; a bit-error-rate (BER); a user data throughput rate; and a number of suspended frames.

25. [ORIGINAL] A network as claimed in claim 24, wherein at least one of the performance parameters related to each wireless link comprises an average, taken over a number n of successive bursts, of any one or more of the S/N ratio; the C/I ratio; the user data throughput rate; and the BER.

26. [PREVIOUSLY AMENDED] A network as claimed in claim 21, wherein the control means is adapted to suspend transmission of a data frame over the poorly performing wireless link.

27. [ORIGINAL] A network as claimed in claim 26, further comprising means for resuming transmission of the data frame after a delay period.

28. [ORIGINAL] A network as claimed in claim 27, wherein the delay period is a period of random length.

29. [PREVIOUSLY AMENDED] A network as claimed in claim 26, wherein the computing means is further adapted to maintain a count of suspended frames.

30. [ORIGINAL] A network as claimed in claim 29, wherein the control means is adapted to suspend a communications session over the wireless link if the count of suspended frames exceeds a predetermined threshold.

31. [PREVIOUSLY AMENDED] A network as claimed in claim 30, further comprising means for restarting the session after a delay period.

32. [PREVIOUSLY AMENDED] A network as claimed in claim 31, wherein the delay period is of random length.

33. [ORIGINAL] A network as claimed in claim 23, wherein at least one of the performance parameters concerning each

wireless link is a QOS performance parameter comprising any one or more of a data transmission delay, and a number of dropped frames.

34. [ORIGINAL] A network as claimed in claim 33, wherein the control means is adapted to drop a data frame transmitted over the poorly performing wireless link.

35. [PREVIOUSLY AMENDED] A network as claimed in claim 34, further comprising means for re-transmitting the dropped frame after a delay period.

36. [ORIGINAL] A network as claimed in claim 35, wherein the delay period is a period of random length.

37. [ORIGINAL] A network as claimed in claim 33, wherein the computing means is adapted to maintain a count of dropped frames.

38. [ORIGINAL] A network as claimed in claim 37, wherein the control means is adapted to drop the session if the count of dropped frames exceeds a predetermined threshold.

39. [ORIGINAL] A network as claimed in claim 33, wherein the computing means is adapted to compute a probability respecting whether the QOS performance parameter is certain to violate a corresponding QOS requirement of a communications session on the link.

40. [ORIGINAL] A network as claimed in claim 39, wherein the control means is adapted to preemptively drop a data frame being transmitted over the poorly performing wireless link.

41. [PREVIOUSLY AMENDED] A base station of a wireless data communications network, the base station being adapted for bi-directional data communications with each one of a

plurality of wireless terminals over respective bi-directional wireless communications links, the base station comprising:

a) computing means for examining performance of each wireless link of the network to identify a poorly performing wireless link; and

b) control means for temporarily interrupting bidirectional data transmission over the identified poorly performing wireless link.

42. [ORIGINAL] A base station as claimed in claim 41, wherein the computing means comprises means for monitoring one or more performance parameters related to each wireless link, and comparing each monitored performance parameter to a respective predetermined tolerance.

43. [ORIGINAL] A base station as claimed in claim 42, wherein the one or more performance parameters related to each wireless link are based on any one or more of a quality-of-service (QOS), and interference on the link.

44. [ORIGINAL] A base station as claimed in claim 43, wherein at least one of the performance parameters related to each wireless link is based on interference on the link, and comprises any one or more of: a signal-to-noise (S/N) ratio; a user data throughput rate; a carrier-to-interference (C/I) ratio; a bit-error-rate (BER); and a number of suspended frames.

45. [ORIGINAL] A base station as claimed in claim 44, wherein at least one of the performance parameters related to each wireless link comprises an average, taken over a number n of successive bursts, of any one or more of the S/N ratio; the C/I ratio; the user data throughput rate; and the BER.

46. [ORIGINAL] A base station as claimed in claim 44, wherein the control means is adapted to suspend transmission of a data frame over the poorly performing wireless link.

47. [AMENDED - February 4, 2003] A base station as claimed in claim 46, wherein the computing means is further adapted to maintain a count of a number of suspended frames.

48. [ORIGINAL] A base station as claimed in claim 47, wherein the control means is adapted to suspend a communications session over the link if the count of suspended frames exceeds a predetermined threshold.

49. [ORIGINAL] A base station as claimed in claim 43, wherein at least one of the performance parameters related to each wireless link is a QOS performance parameter comprising any one or more of a data transmission delay, and a number of dropped frames.

50. [ORIGINAL] A base station as claimed in claim 49, wherein the control means is adapted to drop a data frame transmitted over the poorly performing wireless link.

51. [PREVIOUSLY AMENDED] A base station as claimed in claim 50, wherein the computing means is adapted to maintain a count of dropped frames.

52. [ORIGINAL] A base station as claimed in claim 51, wherein the control means is adapted to drop the session if the count of dropped frames exceeds a predetermined threshold.

53. [ORIGINAL] A base station as claimed in claim 49, wherein the computing means is adapted to compute a probability respecting whether the QOS performance parameter is certain

to violate a corresponding QOS requirement of a communications session on the wireless link.

54. [ORIGINAL] A base station as claimed in claim 53, wherein the control means is adapted to preemptively drop a data frame being transmitted over the poorly performing wireless link.